

What is claimed is:

1. A method of producing an encoded user interface comprising:

- 5 producing a video frame sequence representing an interactive program guide;
encoding said video frame sequence within a head end of an information distribution system.

- 10 2. The method of claim 1 wherein said producing step comprises as step of:
combining, in a frame synchronized manner, background imagery with at least one video sequence and at least one graphic containing program guide information to form said
15 video frame sequence.

- 20 3. The method of claim 2 wherein said encoding step further comprises the step of:
encoding the composited frame sequence to compress information therein to form a digital bitstream.

4. The method of claim 2 wherein the combining step further comprises:

25 compositing, frame-by-frame, at least one video sequence onto said background imagery to form a background sequence; and

30 compositing a plurality of program guide graphics onto said background sequence, where a different program guide graphic is composited onto said background sequence to form a plurality of program guide frame sequences that represent individual program guide pages.

5. The method of claim 4 wherein said encoding step further comprises:

35 separately encoding each of said program guide frame sequences to form a digital bitstream for each of the program guide frame sequences.

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6. The method of claim 5 further comprising the steps of: multiplexing each of the digital bitstreams into a common transport stream.

5 7. The method of claim 6 wherein fifteen program guide sequences are formed, encoded, and contained in a common transport stream.

8. The method of claim 5 further comprising:

10 encoding an audio signal associated with one of the video sequences; and
multiplexing the encoded audio signal into the common transport stream.

15 9. The method of claim 1 wherein the video frame sequence is a television program.

10. The method of claim 1 wherein the video frame sequence is an advertising program.

20 11. The method of claim 1 wherein the video frame sequence is encoded using slice based encoding.

12. The method of claim 11 wherein slice based encoding
25 encodes different regions in a different manner than the encoding that is performed upon other portions of the video frame sequence.

13. The method of claim 12 wherein each region is assigned
30 a unique program identifier.

14. The method of claim 8 wherein said multiplexing step further comprises the step of:
multiplexing foreground program guide data into said
35 common transport stream.

15. Apparatus for producing an encoded user interface comprising:

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a compositor for producing a frame sequence representing an interactive program guide;
an encoder, coupled to said compositor and located within a head end of an information distribution system, for
5 encoding said frame sequences to form a bitstream.

16. The apparatus of claim 15 wherein said compositor produces a plurality of frame sequences and said encoder comprises a plurality of encoders for encoding each frame
10 sequence in said plurality of frame sequences to form a plurality of bitstreams.

17. The apparatus of claim 16 further comprising a multiplexer for multiplexing said plurality of
15 bitstreams into a transport stream.

18. The apparatus of claim 17 wherein said multiplexer assigns a different identification code to each said
20 bitstream.

19. The apparatus of claim 17 further comprising a program guide graphics generator for producing said program guide graphics and foreground overlay graphics, where said foreground overlay graphics are included into the transport
25 stream as user data.

20. The apparatus of claim 17 further comprising a program guide graphics generator for producing said program guide graphics and foreground overlay graphics, where said
30 foreground overlay graphics are included into the transport stream as private data.

21. The apparatus of claim 15 wherein said encoder is an MPEG-2 encoder.

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22. A bitstream comprising:
a compressed video signal representing one or more program guide pages.

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23. The bitstream of claim 22 wherein said compressed video signal is produced using an MPEG encoder.

5 24. The bitstream of claim 22 wherein said compressed video signal forms a portion of a transport stream.

25. The bitstream of claim 24 wherein said compressed video signal is arranged in packets of data.

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26. The bitstream of claim 25 further comprising null packets of data.

27. A method of encoding a plurality of program guide pages
15 comprising the steps of:

encoding each program guide page to form a bitstream representing each program guide page;

determining a longest bitstream;

20 adding null packets to all bitstreams that are not the longest bitstream until all the bitstreams have the same length; and

adding switching packets to each bitstream.

28. A method of encoding a plurality of program guide pages
25 comprising the steps of:

encoding each program guide page to form a bitstream representing each program guide page;

buffering all the bitstreams for all the guide pages;

retrieving said bitstreams from a buffer;

30 ordering the bitstreams into a transport stream to equate the length of the transport stream with the length of other transport streams; and

adding switching packets to the transport stream.

35 29. A method of encoding a plurality of program guide pages comprising the steps of:

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encoding each program guide page to form a bitstream representing each program guide page, where said encoding is started at the same time for each program guide page;

assembling a transport stream containing each bitstream
5 in successive order;

adding switching packets into the transport stream after the bitstreams.

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